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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/844,991	04/27/2001	Maurice Rivoire	AMAT/5297/DD/LOW K/JW	1361
32588	7590	03/24/2004	EXAMINER	
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050			ROSE, ROBERT A	
			ART UNIT	PAPER NUMBER
			3723	

DATE MAILED: 03/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/844,991

Applicant(s)

RIVOIRE ET AL.

Examiner

Robert Rose

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 8,10-19,21,24-30 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 8,10-19,21,24-30 and 32-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>13</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Receipt is acknowledged of Applicant's Prior art Statement, filed December 22, 2003.
2. Claims 1-7, 9, 20, 22-23, and 31 have been canceled.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 8, 10-19, 21, 24-30, and 32-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Homma et al in view of WO 00/49647. Homma et al disclose a method for polishing organosilicate layer on a substrate comprising substantially all of the subject matter set forth in Applicant's claims above. Note the use of an aqueous solution of abrasive within the pH range recited. The values of pressure and platen rotational speed disclosed in Homma et al are within the recited ranges of polishing pressure and platen rotational speed. While Homma et al disclose ceria as the abrasive of choice, it is known from WO 00/49647 to use silicon dioxide colloidal or fumed slurry in lieu of ceria, to polish layers on wafers(page 11, lines 19-21). To substitute a conventional inexpensive abrasive such as silicon dioxide, aluminum oxide, zirconium oxide, or titanium oxide for the ceria abrasive in the method of Homma et al would have been obvious in view of WO 00/49647. The recited percent weight of the abrasive slurry recited falls within the range set forth in WO 00/49647(page 6, lines 21-22), and to perform the method of Homma et al with abrasive concentration within this range would have been obvious in view of WO 00/49647.

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5. Applicant's arguments filed December 22, 2003 have been fully considered but they are not persuasive. Applicant has argued that the primary reference to Homma et al, while disclosing the polishing of an organic insulating film on a wafer, teaches only the use of ceria as a suitable abrasive in the slurry.

Homma et al defines an "organic insulating film" at column 3, lines 55-60 as being comprised predominately of silicon, with 1% or more of organic components. This film is precisely the organosilicate film to which Applicants invention is directed. In the improvement of Homma et al, purified ceria was found to be superior to unpurified ceria in lowering the degree of contamination. While the disclosure of Homma et al is directed to an improved method of polishing this film utilizing purified ceria abrasive, the improvement is over a more common prior art polishing process also disclosed in Homma et al(at column 6, line 35), which in the past has utilized conventional silica slurry to polish such films. WO 00/49647 was merely cited in the rejection to show the known interchangeability and alternative use of conventional metal oxide abrasives such as silicon dioxide, ceria, and various other metal oxides in polishing wafers. The conventional use of KOH with silicon dioxide slurry is taught by the prior art method mentioned in Homma et al(column 1, lines 25-31)..

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period

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will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

7. Any inquiry concerning this communication should be directed to Robert Rose at telephone number (703) 308-1360.

rr

March 17, 2004.

A handwritten signature in black ink, appearing to read "Robert Rose", is located below the date. The signature is written in a cursive, flowing style.